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ABSTRACT: MICROWAVE PRE-DRYING EFFECTS ON FELDSPATHIC PORCELAIN - BIAXIAL FLEXURAL ANALYSIS

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The structural reliability is one of the main objectives in the systematic fabrication of the dental ceramic products. The application of electromagnetic energy of the microwave type in the process of pre-drying of dental ceramics presents an attractive option to explore as a strategy of improving upon the mechanical properties of final pieces, and at the same time for diminishing the time of processing and for saving of energy.

Objectives: to compare the resistance to flexion of a feldesphatic ceramic submitted to pre-drying via microwaves previous to the sintering with respect to a control group.

Materials and methods: 75 feldspathic porcelain discs were prepared and divided themselves in three identical groups that correspond to the control group with no pre-drying via microwaves, a group pre-drying via microwaves in a single cycle of 10s, and a group pre-drying via microwaves in three cycles of 10s with intervals of 1 min among themselves. All pre-drying via microwaves were done using a conventional microwave oven.

Discs were polished and evaluated with Biaxial flexural test.

Results: The results of asymmetrical analysis using Weibull model do not present differences with respect to the characteristic effort found: 59.47Mpa, 56.07Mpa and 57.09 Mpa for groups I, II and III respectively.

The highest of Weibull module found in the group pre-treatment with microwaves during 30s (6.51) presents a more uniform group of ceramic discs and with more structural reliability.

Conclusions: To suggest a standardized protocol of ceramic processing that allows the obtainment of more similar pieces, and with less probability of failing because of microflaws.

Acknowledgment:


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